WINZLER & KELLY
CONSULTING ENGINEERS

Ref: 00-1071-01.11011

February 3, 2006

Mr. Robert Stone
Hazardous Materials Specialist
Humboldt County Division of Environmental Health
100 H Street, Suite 100
Eureka, CA 95501

Re: Fourth Quarter Monitoring Report 2005, Ferndale High School, Gymnasium, LOP # 12445

Dear Mr. Stone:

The Fourth Quarter 2005 monitoring activities at the above-referenced site were performed on December 14, 2005, as reported herein. The previous quarterly monitoring event (Third Quarter 2005) was performed on September 21, 2005. This transmittal includes the following appendices:

Appendix A	Figure 1	Vicinity Map
	Figure 2	Site Map
	Figure 3	Quarterly Monitoring Map
Appendix B	Table 1	Quarterly Hydrographic Data
	Table 2	Quarterly Water Analysis
Appendix C	Field Notes	
Appendix D	Laboratory Reports and Chain-of-Custody Forms	
Appendix E	W&K's Standard Operating Procedures	

Field Activities

Quarterly monitoring was performed on December 14, 2005. All six site monitoring wells (MW-101 through MW-106) were opened and the depth to water was measured in each. The dissolved oxygen concentrations were also measured in each. The hydrographic data, including dissolved oxygen measurements, are listed in Table 1, Appendix B. Wells MW-103 through MW-106 were purged of at least three well volumes to attain equilibrium prior to sampling. The water chemistry parameters of temperature, conductivity and pH were measured during the purge activities and recorded (see Field Notes, Appendix C). Wells MW-101 and MW-102 are not being sampled at this time. During purge operations, odors were noted from the water at wells MW-103, MW-104, and MW-106. The odor at MW-103 appeared to be "petroleum". The odor at MW-104 was noted as "sewage". A perceived odor at MW-105 was noted as questionable. A

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visible sheen was noted in the purge waters at MW-103 and MW-106 only. There was no measurable free product in any of the wells, and positive responses for hydrocarbons at or above laboratory report limits for the project samples were subsequently noted only at well MW-103.

The water samples were held in a chilled cooler and submitted to Alpha Analytical Laboratories, Inc. in Ukiah, California, a State certified analytic laboratory, for analysis. The samples were analyzed for Total Petroleum Hydrocarbons as Diesel (TPH-D) and for Motor Oil (TPH-MO) by method 8015DRO (diesel range organics). These analyses included a silica gel screening procedure prior to analysis to remove biological fatty lipids (biological hydrocarbons). The samples were also analyzed for TPH-Gasoline (TPH-G) by method 8260 GRO (gasoline range organics). The BTEX components of Benzene, Ethylbenzene, Toluene, Xylenes, and Methyl-t-Butyl Ether (MtBE) were analyzed by EPA Method 8260B. The analytic results are listed in Table 2, Appendix B. The Laboratory Report and the Chain of Custody are contained in Appendix D.

Hydrographic Data

Table 1, Appendix B contains the tabulated data for depth-to-water measurements, as measured from the top of the casing (toc) for each well. The depth to water ranged from 3.04 feet in MW-101 to 4.84 feet in MW-104. The depth differences appears normal for this site, and are likely due to slight variations in site topography. The water levels in the wells were higher than those measured in September 2005 by about 2 to 3 feet. The direction and slope of groundwater flow was calculated by linear regression of the hydrographic data. The groundwater flow direction for December 14, 2005 was 318.44 degrees Azimuth (northwesterly) with a slope of 1.12 ft/100ft. The December 2005 groundwater gradient is reasonably consistent with the directions noted in previous quarters. See Table 1, Appendix B for the summary of historic gradient data.

Analytic Data

Four of the site wells were sampled for analysis, including MW-103, MW-104, MW-105, and MW-106. The results of analyses for TPH-G, TPH-D, TPH-MO and BTEX are listed in Table 2, Appendix B. The laboratory reports and chain-of-custody documents are contained in Appendix D. The water samples at wells MW-104, MW-105, and MW-106 were non-detect for the components of TPH-Diesel, and TPH-Motor Oil at the standard report limits of <50 parts per billion (ppb), and <100 ppb, respectively. MW-105 and MW-106 were non-detect for TPH-Gasoline at or above the standard report limits of 100 ppb. MW-104 was non-detect for TPH-Gasoline at or above the raised report limit of <250 ppb, which was raised due to sample foaming.

MW-104, MW-105, and MW-106 were non-detect for all of the BTEX constituents, however, the report limits for all BTEX analytes were raised above the standard limits due to sample foaming effects. The report limits for each are listed in Table 2, Appendix B.

MW-103 yielded positive results for almost all of the petroleum analytes, with the exception of TPH-Motor Oil, which was non-detect at or above the standard report limit of 100 ppb. The water sample from MW-103 was positive for TPH-G at 940 ppb and TPH-Diesel at 51 ppb. It was also positive for Benzene (110 ppb), Toluene (9.8 ppb), Ethylbenzene (22 ppb), and total Xylenes (100 ppb). The response for total Xylenes represents the sum of both Xylene isomers, m,p-Xylene and "o" Xylene. MW-103 was non-detect for MtBE at or above the raised report limit of 2.5 ppb. The TPH-gasoline response at MW-103 for December represented a decrease from that as tested in the previous quarter (September 2005), when the positive response at MW-103 was noted as 1,600 ppb. The TPH-D response at MW-103 increased to 51 ppb from the non-detect response (<50 ppb) as noted in the preceding quarter (September, 2005). The BTEX responses in December, 2005 either decreased slightly or remained somewhat similar to those of September, 2005, when the responses were Benzene (240 ppb), Toluene (7.9 ppb), Ethylbenzene (21 ppb), and Total Xylenes (160 ppb).

Quality Assurance/Quality Control (QA/QC)

QA/QC for fieldwork was provided by adherence to the Winzler & Kelly Standard Operating Procedures (SOPs) for *Groundwater Level Measurements and Free Phase Hydrocarbon Measurements*, and for *Monitor Well Purging and Sampling Activities* (see W&K SOPs, Appendix E). In addition, all samples were held and transported in a chilled cooler and accompanied by chain-of-custody documentation to a State certified laboratory for analysis, in accordance with EPA protocols. Water samples were accompanied with a Travel Blank for lab analysis to evaluate possible cross-contamination during sample handling and shipping.

The laboratory was instructed to not analyze the Travel Blank for the volatile organic compounds (BTEX) components if any field samples were non-detect for all volatile components (BTEX and TPH-G), however, the laboratory did analyze the Travel Blank (QCTB), as listed in the laboratory report. The results were non-detect for all components at or above the standard report limits.

The Laboratory QA/QC included the analysis of clean Method Blank samples for each analyte to verify the absence of false positive analyses. False positive results can result from residual (background) contaminants in the analytic equipment. The Method Blank for TPH-MO yielded a false positive response of 127 ppb, however, the TPH-MO analysis of all project samples were nonetheless noted as non-detect for motor oil at or above 100 ppb. All of the other Method Blank analyses were non-detect.

The laboratory analyzed Laboratory Control Spike (LCS) samples of "spiked" blanks to evaluate the "percent recovery" for all the project analytes. All analytes were within acceptable EPA limits. LCS Duplicates (LCSD) were also analyzed to verify the reproducibility of analytic results, and all analytes were within acceptable EPA limits.

The laboratory also analyzed Matrix Spike and Matrix Spike Duplicates, which are the analyses of known analyte spikes in an actual sample matrix, either job specific, or on a batch basis. This is used to evaluate the percentage recovery and % RPD of target analytes and analytic procedures, respectively. All Matrix Spike results were within the acceptable range limits.

The Laboratory noted that the BTEX analysis report limits for all of the samples and the TPH-G analysis report limit for MW-104 were raised above the standard report limits due to analytic interference from sample foaming. This foaming was discussed with the laboratory; however, the cause has not been determined.

Conclusions

- The groundwater gradient direction for December 2005 was to the north-west (Azimuth 318.44°), which is consistent with that of most previous quarters. The gradient direction as calculated for September 2005, to the north-northeast (azimuth 7.59°), did appear to be an exception to other historic directions.
- The December 2005 analytical data indicate continued hydrocarbon impacts to the groundwater at well MW-103. December 2005 analytical data from wells MW-104, MW-105, and MW-106 did not produce reportable results for any tested hydrocarbons.
- Although petroleum-like odors and sheens were noted on waters purged from most of the site monitor wells, these effects are not necessarily due to petroleum hydrocarbons. Such effects, including hydrogen sulfide odors, can be generated

from organic sources and natural reducing conditions, often generating a "sewage" like odor. The low dissolved oxygen measurements at these wells may indicate a general lack of free oxygen.

Recommendations/Schedule

- The water level data and analytical results for the December 2005 sampling event will be submitted electronically to the State Water Resources Control Board Geotracker system (Global ID #0602300340).
- The next quarterly monitoring event, for the First Quarter 2006, is scheduled for March 2006.
- Onsite storage drums containing well rinsate and purge waters are being scheduled for disposal.
- A geophysical survey of the site was performed on November 11, 2005, by NORCAL Geophysical Consultants, Inc. The survey indicated that no suspected USTs remain in place near MW-103, however, an area indicating fill materials was noted at the location where the former USTs were known to exist. The report has been submitted under separate cover. It is recommended that Winzler & Kelly consult with the lead agency (HCDEH) on the results and on possible remedial strategies.

Should you have any questions regarding any of this information, please do not hesitate to call Terry Clark or Kenneth Thiessen at this office, (707) 443-8326.

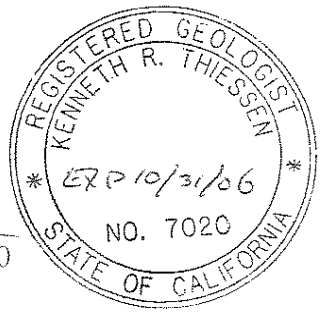
Sincerely,
WINZLER & KELLY

Prepared by

Terry Clark
Project Geologist

Reviewed by

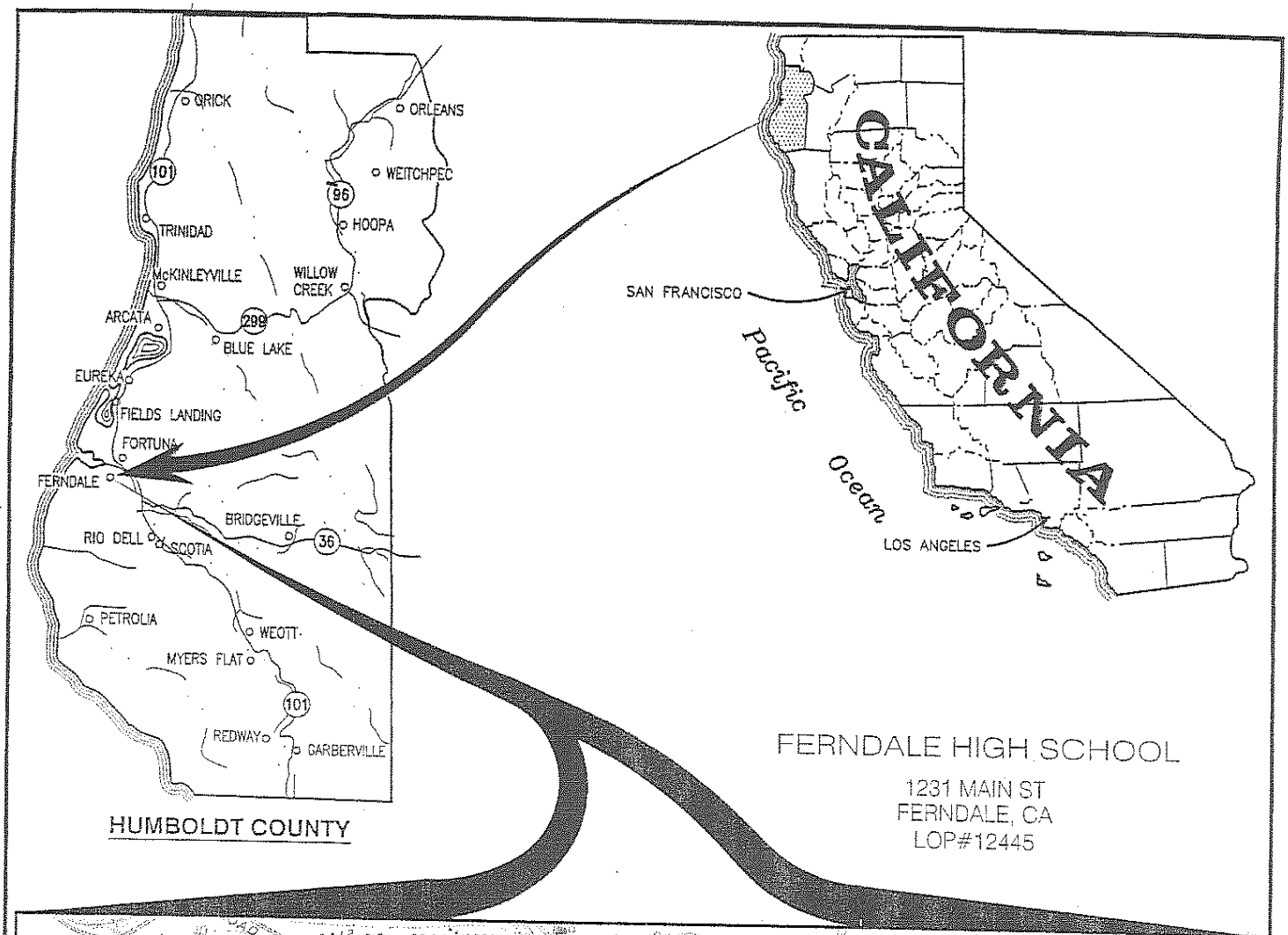
Kenneth Thiessen, R.G. #7020
Senior Geologist

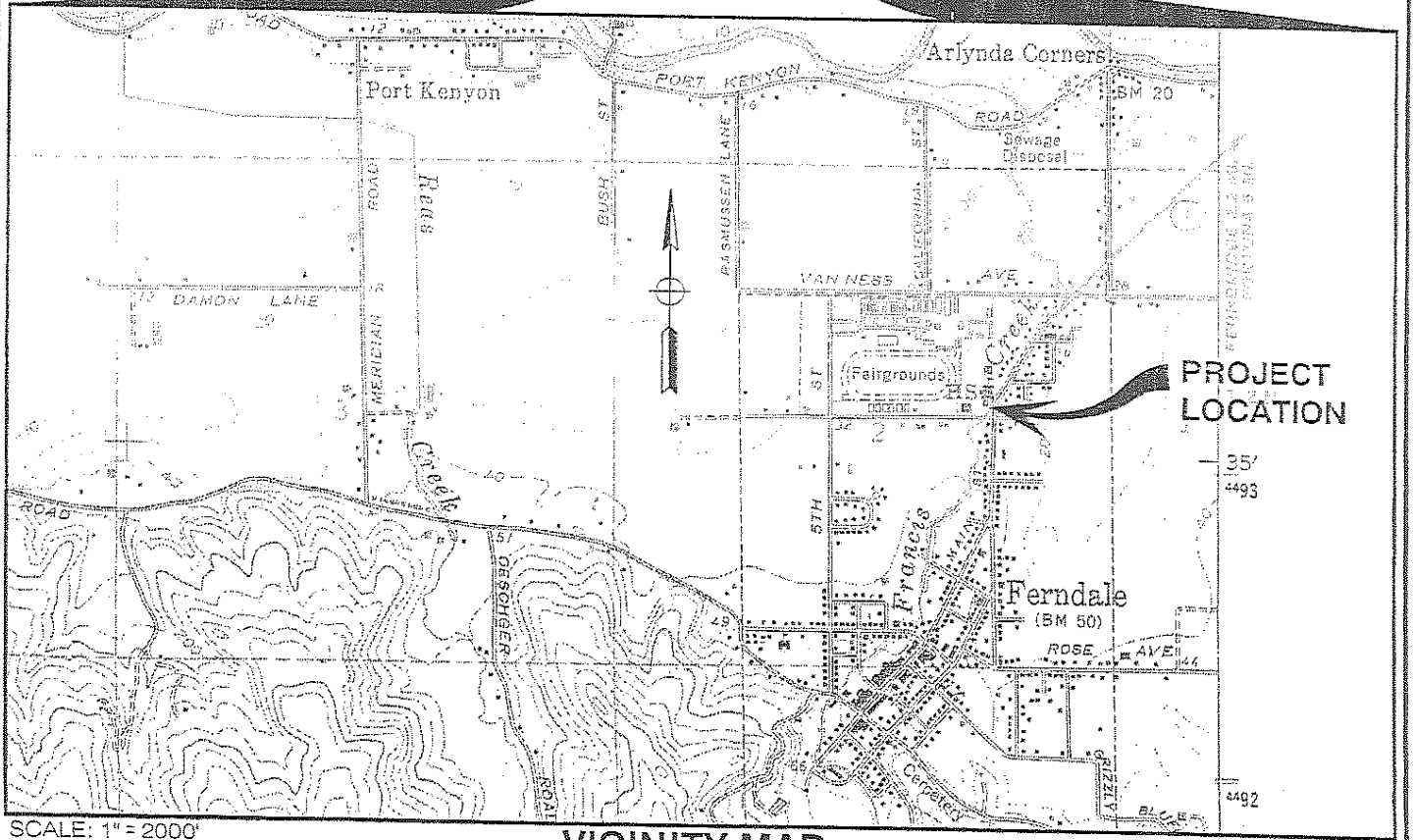


Enclosures

c: Mr. Alan Brainerd, Ferndale Union High School, 1231 Main Street, Ferndale, CA 95536

Appendix A
Figures





SCALE: 1" = 2000'

VICINITY MAP

FIGURE 1

WINZLER & KELLY

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Appendix B
Tables

TABLE 1
QUARTERLY HYDROGRAPHIC DATA
Ferndale High School
LOP # 12445

Date	Well Number	Top of Casing (ft)	A Depth to Water (ft)	Groundwater Elevation (ft)	B Depth to Product (ft)	(A-B=C) Product Thickness (ft)	D Correction Factor (C x 0.729*)	A-D Equiv. Depth to Water (ft)	Dissolved Oxygen (mg/l)	Direction of Gradient (Azimuth)	Gradient Slope (ft / 100 ft)
13-Aug-02	MW-101	32.34	6.29	26.05	None	0.00	0.00	6.29	NT	342.43	1.76
	MW-102	34.11	7.75	26.36	None	0.00	0.00	7.75	NT		
	MW-103	34.29	5.25	29.04	None	0.00	0.00	5.25	NT		
	MW-104	36.41	6.81	29.60	None	0.00	0.00	6.81	NT		
12-Dec-02	MW-101	32.34	7.66	24.68	None	0.00	0.00	7.66	8.06	327.70	1.40
	MW-102	34.11	6.13	27.98	None	0.00	0.00	6.13	5.80		
	MW-103	34.29	6.15	28.14	None	0.00	0.00	6.15	3.43		
	MW-104	36.41	7.55	28.86	None	0.00	0.00	7.55	3.05		
06-Mar-03	MW-101	32.34	2.81	29.53	None	0.00	0.00	2.81	0.26	344.45	1.82
	MW-102	34.11	4.25	29.86	None	0.00	0.00	4.25	0.25		
	MW-103	34.29	1.63	32.66	None	0.00	0.00	1.63	0.25		
	MW-104	36.41	3.25	33.16	None	0.00	0.00	3.25	0.23		
28-May-03	MW-101	32.34	3.52	28.82	None	0.00	0.00	3.52	0.11	343.00	1.92
	MW-102	34.11	4.99	29.12	None	0.00	0.00	4.99	0.10		
	MW-103	34.29	2.21	32.08	None	0.00	0.00	2.21	0.30		
	MW-104	36.41	3.74	32.67	None	0.00	0.00	3.74	0.15		
05-Sep-03	MW-101	32.34	6.37	25.97	None	0.00	0.00	25.97	1.6	341.44	1.77
	MW-102	34.11	7.81	26.30	None	0.00	0.00	26.30	1.8		
	MW-103	34.29	5.32	28.97	None	0.00	0.00	27.45	2.2		
	MW-104	36.41	6.84	29.57	None	0.00	0.00	31.09	1.6		
1-Dec-03	MW-101	32.34	2.34	30.00	None	0.00	0.00	2.34	0.8	246.10	0.15
	MW-102	34.11	4.27	29.84	None	0.00	0.00	4.27	1.0		
	MW-103	34.29	4.48	29.81	None	0.00	0.00	4.48	1.1		
	MW-104	36.41	6.42	29.99	None	0.00	0.00	6.42	0.9		
31-Mar-04	MW-101	32.34	2.01	30.33	None	0.00	0.00	2.01	1.1	353.70	1.45
	MW-102	34.11	3.54	30.57	None	0.00	0.00	3.54	0.9		
	MW-103	34.29	1.37	32.92	None	0.00	0.00	1.37	1.5		
	MW-104	36.41	3.38	33.03	None	0.00	0.00	3.38	1.0		
8-Jun-04	MW-101	32.34	4.90	27.44	None	0.00	0.00	4.9	0.6	341.58	1.78
	MW-102	34.11	6.38	27.73	None	0.00	0.00	6.38	0.5		
	MW-103	34.29	3.85	30.44	None	0.00	0.00	3.85	0.7		
	MW-104	36.41	5.37	31.04	None	0.00	0.00	5.37	1.6		
09-Sep-04	MW-101	32.34	6.76	25.58	None	0.00	0.00	6.76	1.2	339.24	1.64
	MW-102	34.11	8.21	25.90	None	0.00	0.00	8.21	0.5		
	MW-103	34.29	5.97	28.32	None	0.00	0.00	5.97	6.0		
	MW-104	36.41	7.46	28.95	None	0.00	0.00	7.46	0.7		

*0.729 is the density of gasoline at 15°C as referenced in the API Publication 1628, Second Edition, August, 1989
NT = Not Tested

TABLE 1
QUARTERLY HYDROGRAPHIC DATA
Ferndale High School
LOP # 12445

Date	Well Number	Top of Casing (ft)	A Depth to Water (ft)	Groundwater Elevation (ft)	B Depth to Product (ft)	(A-B=C) Product Thickness (ft)	D Correction Factor (C x 0.729*)	A-D Equiv. Depth to Water (ft)	Dissolved Oxygen (mg/l)	Direction of Gradient (Azimuth)	Gradient Slope (ft / 100 ft)
01-Dec-04	MW-101	32.34	5.97	26.37	None	0.00	0.00	5.97	NT	338.89	1.36
	MW-102	34.11	5.91	28.20	None	0.00	0.00	5.91	NT		
	MW-103	34.29	4.95	29.34	None	0.00	0.00	6.61	NT		
	MW-104	36.41	6.61	29.80	None	0.00	0.00	4.95	NT		
10-Mar-05[1]	MW-101	35.17	1.43	33.74	None	0.00	0.00	1.43	NT	316.30	1.35
	MW-102	36.93	2.66	34.27	None	0.00	0.00	2.66	NT		
	MW-103	37.12	1.27	35.85	None	0.00	0.00	1.27	NT		
	MW-104	39.22	2.98	36.24	None	0.00	0.00	2.98	NT		
	MW-105	38.58	2.20	36.38	None	0.00	0.00	2.20	NT		
	MW-106	36.34	1.34	35.00	None	0.00	0.00	1.34	NT		
13-Jun-05	MW-101	35.17	4.24	30.93	None	0.00	0.00	4.24	3.4	344.54	1.62
	MW-102	36.93	5.73	31.20	None	0.00	0.00	5.73	3.8		
	MW-103	37.12	3.04	34.08	None	0.00	0.00	3.04	0.4		
	MW-104	39.22	4.47	34.75	None	0.00	0.00	4.47	0.6		
	MW-105	38.58	4.03	34.55	None	0.00	0.00	4.03	0.2		
	MW-106	36.34	3.21	33.13	None	0.00	0.00	3.21	0.8		
21-Sep-05	MW-101	35.17	6.35	28.82	None	0.00	0.00	6.35	0.3	7.59	1.53
	MW-102	36.93	7.79	29.14	None	0.00	0.00	7.79	0.9		
	MW-103	37.12	5.27	31.85	None	0.00	0.00	5.27	0.3		
	MW-104	39.22	6.75	32.47	None	0.00	0.00	6.75	1.5		
	MW-105	38.58	6.35	32.23	None	0.00	0.00	6.35	0.5		
	MW-106	36.34	5.04	31.30	None	0.00	0.00	5.04	1.4		
19-Dec-05	MW-101	35.17	3.04	32.13	None	0.00	0.00	3.04	0.2	318.44	1.12
	MW-102	36.93	4.63	32.30	None	0.00	0.00	4.63	0.2		
	MW-103	37.12	3.34	33.78	None	0.00	0.00	3.34	0.7		
	MW-104	39.22	4.84	34.38	None	0.00	0.00	4.84	1.2		
	MW-105	38.58	4.41	34.17	None	0.00	0.00	4.41	0.5		
	MW-106	36.34	3.17	33.17	None	0.00	0.00	3.17	0.7		

*0.729 is the density of gasoline at 15°C as referenced in the API Publication 1628, Second Edition, August, 1989

[1] All six wells were re-surveyed by GPS and set to NAVD 88 vertical datum

NT = Not Tested

TABLE 2
QUARTERLY WATER ANALYSIS
Ferndale High School
LOP #12445

All results in parts per billion (ppb, ug/l) with the exception of August 2002 lead analysis, which is in ppm. (mg/l)

Well/Boring ID	Date	TPH-D (ppb)	TPH-MO (ppb)	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes [a] (ppb)	MTBE (ppb)	(DIPE) Diisopropyl-ether (ppb)	(ETBE) Ethyl-t-butyl ether (ppb)	(TAME) Tert-amyl methyl ether (ppb)	(TBA) Tert-butanol (ppb)	Methanol (ppb)	Ethanol (ppb)	1,2 Dichloro-ethane (ppb)	1,2 Dibromo-ethane (ppb)	Chloro-benzene (ppb)	1,3-Dichloro-benzene (ppb)	1,4-Dichloro-benzene (ppb)	1,2-Dichloro-benzene (ppb)
MW-101	13-Aug-02	<50	<100	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<5.0	<50	9	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	2-Dec-02	<50	NT	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<1.0	<1.0	<1.0	<5.0	52	<5.0	NT	NT	NT	NT	NT	NT
	6-Mar-03	<50	< 100	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	28-May-03	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	5-Sep-03	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	1-Dec-03	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	31-Mar-04	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	8-Jun-04	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	9-Sep-04	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	1-Dec-04	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	10-Mar-05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	13-Jun-05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	21-Sep-05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	14-Dec-05																				
MW-102	13-Aug-02	<50	<100	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<5.0	<50	9	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	2-Dec-02	<50	NT	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<1.0	<1.0	<1.0	<5.0	240	17	NT	NT	NT	NT	NT	NT
	6-Mar-03	<50	< 100	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	28-May-03	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	5-Sep-03	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	1-Dec-03	<50	< 170	<50	0.95	<0.50	0.77	1.1	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	31-Mar-04	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	8-Jun-04	<50	< 170	<50	<0.50	<0.50	<0.50	0.64	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	10-Sep-04	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	1-Dec-04	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	10-Mar-05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	13-Jun-05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	21-Sep-05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	14-Dec-05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-103	13-Aug-02	<50	<100	77	4.3	2.3	0.98	3.90	<0.50	<0.50	<0.50	<0.50	<5.0	<50	16	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	2-Dec-02	<50	NT	1,700	280	190	43	149	<3.0	<3.0	<3.0	<3.0	<30	120	9.3	NT	NT	NT	NT	NT	NT
	6-Mar-03	<50	<100	510	53	33	16	61	<3.0	NT	NT	NT	NT	NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	28-May-03	<50	< 170	470	28	7.3	11	22.8	<0.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	<1.0	<1.0	<1.0
	5-Sep-03	150	< 170	2,700	600/450[b]	140/120[b]	110/85[b]	460/342[b]	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	<1.0	<1.0	<1.0
	1-Dec-03	140	< 170	2,500	380	100	64	236	<30	NT	NT	NT	NT	NT	NT	NT	NT	NT	<1.0	<1.0	<1.0
	31-Mar-04	<50	< 170	65	8.5	3.4	<0.50	5.2	<30	NT	NT	NT	NT	NT	NT	NT	NT	NT	<1.0	<1.0	<1.0
	8-Jun-04	120	< 170	1,700	380	38	74	324	<30	NT	NT	NT	NT	NT	NT	NT	NT	NT	<1.0	<1.0	<1.0
	9-Sep-04	130	<170	1,800	320	19	37	167	<30	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	1-Dec-04	96	<170	1,100	230	26	24	106	<30	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	10-Mar-05	<50	<170	130	8.2	6.9	3.3	13.5	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	13-Jun-05	<50	<100	1,500	200	41	33	240	<2.5 [c]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	21-Sep-05	<50	<100	1,600	240	7.9	21	160	<2.5 [c]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	14-Dec-05	51	<100	940	110	9.8	22	100	<2.5 [c]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

TABLE 2
QUARTERLY WATER ANALYSIS
Ferndale High School
LOP #12445

All results in parts per billion (ppb or ug/l) with the exception of August 2002 lead analysis, which is in parts per million (ppm, mg/l)

Well/Boring ID	Date	TPH-D (ppb)	TPH-MO (ppb)	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes [a] (ppb)	MTBE (ppb)	(DIPE) Diisopropyl-ether (ppb)	(ETBE) Ethyl-t-butyl ether (ppb)	(TAME) Tert-amyl methyl ether (ppb)	(TBA) Tert-butanol (ppb)	Methanol (ppb)	Ethanol (ppb)	1,2 Dichloro-ethane (ppb)	1,2 Dibromo-ethane (ppb)	Chloro-benzene (ppb)	1,3-Dichloro-benzene (ppb)	1,4-Dichloro benzene (ppb)	1,2-Dichloro-benzene (ppb)
MW-104	13-Aug-02	<50	<100	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<5.0	52	14	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	2-Dec-02	<50	NT	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<1.0	<1.0	<1.0	<5.0	120	14	NT	NT	NT	NT	NT	NT
	6-Mar-03	<50	< 100	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	28-May-03	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	5-Sep-03	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	1-Dec-03	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	31-Mar-04	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	8-Jun-04	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	9-Sep-04	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	1-Dec-04	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	10-Mar-05	<50	< 170	<50	<0.50	<0.50	<0.50	<1.0	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	13-Jun-05	<50	<100	<100	<0.60 [2]	<0.60 [2]	<1.0 [2]	<1.0 [2]	<1.0 [2]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	21-Sep-05	<50	<100	<50	<0.30	<0.30	<0.30	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	14-Dec-05	<50	<100	<250 [1]	<1.5 [2]	<1.5 [2]	<2.5 [2]	<2.5 [2]	<2.5 [2]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-105	10-Mar-05	<50	<170	<50	<0.50	<0.50	<2.5	<0.50	<3.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	13-Jun-05	<50	<100	<100	<1.5 [2]	<1.5 [2]	<2.5 [2]	<2.5 [2]	<2.5 [2]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	21-Sep-05	<50	<100	<100	<0.60 [2]	<0.60 [2]	<1.0 [2]	<1.0 [2]	<1.0 [2]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	14-Dec-05	<50	<100	<100	<0.60 [2]	<0.60 [2]	<1.0 [2]	<1.0 [2]	<1.0 [2]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
MW-106	10-Mar-05	<50	<170	<50	<0.50 [2]	<0.50 [2]	<0.50 [2]	<0.50 [2]	<3.0 [2]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	13-Jun-05	<50	<100	<100	<0.60 [2]	<0.60 [2]	<1.0 [2]	<1.0 [2]	<1.0 [2]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	21-Sep-05	<50	<100	<50	<0.30	<0.30	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	14-Dec-05	<50	<100	<100	<0.60 [2]	<0.60 [2]	<1.0 [2]	<1.0 [2]	<1.0 [2]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

For dates up to and including March 10, 2005, TPH-Diesel/TPH-Motor Oil by analysis by EPA Method 3510/8015 Modified. TPH-G and BTEX analysis by EPA Method 8021B, analysis of 7 oxygenates and 6 lead scavengers by EPA Method 8260B.

For dates including and after June 13, 2005, TPH-Diesel/TPH-Motor Oil by analysis by Method 8015DRO (Luft), TPH-G analysis by 8260 GRO, and BTEX analysis by EPA Method 8260.

[a] Total Xylenes include results of m,p Xylene and "o" Xylene as reported by the laboratory.

[1] Results in the diesel organics range primarily due to overlap from a gasoline range product.

[2] The Reporting Limit for this analyte has been raised to account for matrix interference, including sample foaming

[3] Two analysis of BTEX performed, both by EPA Method 8021B

NT =-Not Tested

Appendix C
Field Notes

PROJECT NAME: Fern High
PROJECT NUMBER: 00107101.11030

TODAY'S DATE: 12-14-05
FIELD PERSONNEL:

WELL NUMBER	OPEN WELL	INITIAL WATER LEVEL		FINAL WATER LEVEL		COMMENTS
	Time	Time	Depth to Water (ft. bgs)	~~Time~~ D.O.	Depth to Water (ft. bgs)	
MW-101	8:01	9:00	3.04	0.2mg/L		
MW-102	8:06	9:05	4.63	0.2mg/L		
MW-104	8:12	9:11	4.84	1.2mg/L		14.87
MW-105	8:18	9:16	4.41	0.5mg/L		15
MW-106	8:23	9:21	3.17	0.7mg/L		15
MW-103	8:30	9:27	3.34	0.7mg/L		15

Weather Conditions Today: Overcast

WINZLER & KELLY
Consulting Engineering

SUBJECT NAME: Fern High
PROJECT NUMBER: 00107.01.11030
WELL DESIGNATION: MW-103

PROJECT DATE: 12-14-05
SAMPLER: _____
SAMPLE NUMBER MW-103

CONDITION OF WELL HEAD/VAULT/CAP & LOCK
- A. TOP OF CASING ELEVATION
- B. DEPTH TO GROUNDWATER (initial) 3.34
- C. DEPTH OF WELL MEASURED 15
- D. HEIGHT OF WATER COLUMN (C-B) 15 - 3.34 = 11.66
- E. GROUNDWATER ELEVATION (A-B)

CASING DIAMETER: 2" ✓ 3"_____ 4"_____ OTHER_____

CALCULATED WELL VOLUME: DxV= 11.66 x .163 = 1.90 gal
- A. Volume (V) of 2" wall = 0.163 gal/ft
- B. Volume (V) of 4" wall = 0.653 gal/ft

ODOR yes SHEEN yes FLOATING PRODUCT THICKNESS no

PUMP TUPE: POLY BAILER_____ STAINLESS BAILER_____
ELECTRIC_____ OTHER_____

PUMP DEPTH:

TIME	GALLONS PURGED	NO. OF WELL VOLUMES	PH	TEMPERATURE (^{0}F OR ^{0}C)	CONDUCTIVITY (mmhos/cm or µmhos/cm)	TURBIDITY (NTU or visual)
3:00	2	1.05	6.67	16.1	0.09 ms/cm	murky
3:11	3	1.58	6.72	16.3	0.09 ms/cm	↓
3:21	4	2.11	6.74	16.5	0.09 ms/cm	
3:35	5	2.63	6.75	16.6	0.09 ms/cm	
3:45	5.25	2.76	6.75	16.5	0.09 ms/cm	
3:57	5.50	2.89	6.72	15.8	0.10 ms/cm	
4:10	5.75	3.03	6.72	15.9	0.10 ms/cm	↓

RECHARGE RATE (qualitative):_____
SAMPLER TYPE: TEFLON BAILER____ ACRYLIC BAILER_____ DISPOSABLE BAILER ____

SAMPLES COLLECTER: PRESERVED VOA'S_____ UNPRESERVED VOA'S_____
PRESERVED LITERS_____ UNPRESERSERVED LITERS_____
500ml PLASTIC BOTTLE WITH PRESERVATIVE FOR METALS:
FILTERED_____ UNFILTERED_____ OTHER_____

COMMENTS_____

WINZLER & KELLY
Consulting Engineering

SUBJECT NAME: Fern High
PROJECT NUMBER: 001071.11030
WELL DESIGNATION: MW-104

PROJECT DATE: 12-14-05
SAMPLER:
SAMPLE NUMBER MW-104

CONDITION OF WELL HEAD/VAULT/CAP & LOCK
A. TOP OF CASING ELEVATION
B. DEPTH TO GROUNDWATER (initial) 4.84
C. DEPTH OF WELL MEASURED 14.87
D. HEIGHT OF WATER COLUMN (C-B) 14.87 - 4.84 = 10.03
E. GROUNDWATER ELEVATION (A-B)

CASING DIAMETER: 2"_____ 3"_____ 4"_____ OTHER_____

CALCULATED WELL VOLUME: DxV= 10.03 X .163 = 1.63 gal
A. Volume (V) of 2" wall = 0.163 gal/ft
B. Volume (V) of 4" wall = 0.653 gal/ft

ODOR Sewer SHEEN no FLOATING PRODUCT THICKNESS no

PUMP TUPE: POLY BAILER_____ STAINLESS BAILER_____
ELECTRIC_____ OTHER_____

PUMP DEPTH:

TIME	GALLONS PURGED	NO. OF WELL VOLUMES	PH	TEMPERATURE (^{0}F OR ^{0}C)	CONDUCTIVITY (mmhos/cm or µmhos/cm)	TURBIDITY (NTU or visual)
9:45	1	0.61	6.60	13.5	0.11 ms/cm	clear
9:55	2	1.23	6.53	14.1	712 us/cm	↓
10:07	3	1.84	6.52	14.4	1.90 ms/cm	↓
10:17	4	2.45	6.53	14.5	1.14 ms/cm	↓
10:28	4.25	2.61	6.54	14.6	1.11 ms/cm	↓
10:40	4.50	2.76	6.54	14.6	1.21 ms/cm	↓
10:50	4.75	2.91	6.55	14.8	1.18 ms/cm	↓
11:01	5.0	3.07	6.55	14.6	1.18 ms/cm	↓

RECHARGE RATE (qualitative):_____
SAMPLER TYPE: TEFLON BAILER____ ACRYLIC BAILER____ DISPOSABLE BAILER____

SAMPLES COLLECTER: PRESERVED VOA'S____ UNPRESERVED VOA'S_____
PRESERVED LITERS_____ UNPRESERSERVED LITERS_____
500ml PLASTIC BOTTLE WITH PRESERVATIVE FOR METALS:
FILTERED_____ UNFILTERED_____ OTHER_____

COMMENTS_____

WINZLER & KELLY
Consulting Engineering

SUBJECT NAME: Fern High
PROJECT NUMBER: 00107101.11030
WELL DESIGNATION: MW-105

PROJECT DATE: 12-14-05
SAMPLER: _____
SAMPLE NUMBER MW-105

CONDITION OF WELL HEAD/VAULT/CAP & LOCK
A. TOP OF CASING ELEVATION
B. DEPTH TO GROUNDWATER (initial) 4.41
C. DEPTH OF WELL MEASURED 15
D. HEIGHT OF WATER COLUMN (C-B) 15 - 4.41 = 10.59
E. GROUNDWATER ELEVATION (A-B)

CASING DIAMETER: 2" ✓ 3" _____ 4" _____ OTHER _____

CALCULATED WELL VOLUME: DxV= 10.59 X .163 = 1.73 gal
A. Volume (V) of 2" wall = 0.163 gal/ft
B. Volume (V) of 4" wall = 0.653 gal/ft

ODOR ? SHEEN no FLOATING PRODUCT THICKNESS no

PUMP TUPE: POLY BAILER _____ STAINLESS BAILER _____
ELECTRIC _____ OTHER _____

PUMP DEPTH:

TIME	GALLONS PURGED	NO. OF WELL VOLUMES	PH	TEMPERATURE (^{0}F OR ^{0}C)	CONDUCTIVITY (mmhos/cm or µmhos/cm)	TURBIDITY (NTU or visual)
11:30	1	0.58	6.21	14.6	0.12 ms/cm	murky
11:41	2	1.16	6.35	14.9	590 us/cm	↓
11:52	3	1.73	6.42	14.9	572 us/cm	↓
12:02	4	2.31	6.47	14.9	563 us/cm	↓
12:12	4.5	2.60	6.51	14.7	554 us/cm	↓
12:25	4.75	2.75	6.53	14.6	555 us/cm	↓
12:39	5	2.89	6.56	14.4	555 us/cm	↓
12:47	5.25	3.03	6.57	14.4	553 us/cm	↓

RECHARGE RATE (qualitative): _____
SAMPLER TYPE: TEFLON BAILER ____ ACRYLIC BAILER ____ DISPOSABLE BAILER ____

SAMPLES COLLECTER: PRESERVED VOA'S ____ UNPRESERVED VOA'S ____
PRESERVED LITERS ____ UNPRESERSERVED LITERS ____
500ml PLASTIC BOTTLE WITH PRESERVATIVE FOR METALS:
FILTERED ____ UNFILTERED ____ OTHER ____

COMMENTS _____

WINZLER & KELLY
Consulting Engineering

SUBJECT NAME: Fern High
PROJECT NUMBER: 00107101.11030
WELL DESIGNATION: MW-106

PROJECT DATE: 12-14-05
SAMPLER: _____
SAMPLE NUMBER MW-106

CONDITION OF WELL HEAD/VAULT/CAP & LOCK
- A. TOP OF CASING ELEVATION
- B. DEPTH TO GROUNDWATER (initial) 3.17
- C. DEPTH OF WELL MEASURED 15
- D. HEIGHT OF WATER COLUMN (C-B) 15 - 3.17 = 11.83
- E. GROUNDWATER ELEVATION (A-B)

CASING DIAMETER: 2" ✓ 3" _____ 4" _____ OTHER _____

CALCULATED WELL VOLUME: DxV= 11.83 x .163 = 1.93 gal
- A. Volume (V) of 2" wall = 0.163 gal/ft
- B. Volume (V) of 4" wall = 0.653 gal/ft

ODOR yes SHEEN yes FLOATING PRODUCT THICKNESS no

PUMP TUPE: POLY BAILER _____ STAINLESS BAILER _____
ELECTRIC _____ OTHER _____

PUMP DEPTH:

TIME	GALLONS PURGED	NO. OF WELL VOLUMES	PH	TEMPERATURE (°F OR °C)	CONDUCTIVITY (mmhos/cm or µmhos/cm)	TURBIDITY (NTU or visual)
1:15	2	1.04	6.39	14.4	0.88 ms/cm	murky
1:27	3	1.55	6.31	13.9	0.88 ms/cm	↓
1:37	4	2.07	6.38	14.1	138.8 µs/cm	↓
1:49	5	2.59	6.46	14.2	160.9 µs/cm	↓
1:59	5.25	2.72	6.44	14.4	162.0 µs/cm	↓
2:11	5.50	2.85	6.52	13.9	124.3 µs/cm	↓
2:22	5.75	2.98	6.51	14.1	124.0 µs/cm	↓
2:35	6.0	3.11	6.54	14.0	124.2 µs/cm	↓

RECHARGE RATE (qualitative): _____
SAMPLER TYPE: TEFLON BAILER____ ACRYLIC BAILER_____ DISPOSABLE BAILER ____

SAMPLES COLLECTER: PRESERVED VOA'S_____ UNPRESERVED VOA'S_____
PRESERVED LITERS_____ UNPRESERSERVED LITERS_____
500ml PLASTIC BOTTLE WITH PRESERVATIVE FOR METALS:
FILTERED_____ UNFILTERED_____ OTHER_____

COMMENTS _____

Appendix D
Laboratory Reports and Chain-of-Custody Forms

Alpha Analytical Laboratories Inc.
208 Mason St. Ukiah, California 95482
e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

03 January 2006

Winzler & Kelly - Eureka
Attn: Terry Clark
633 Third Street
Eureka, CA 95501-0417
RE: Ferndale High School
Work Order: A512457

Enclosed are the results of analyses for samples received by the laboratory on 12/15/05 18:05. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sheri Speaks

Sheri L. Speaks
Project Manager

Alpha Analytical Laboratories Inc.
208 Mason St. Ukiah, California 95482
e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

CHEMICAL EXAMINATION REPORT

Winzler & Kelly - Eureka
633 Third Street
Eureka, CA 95501-0417
Attn: Terry Clark

Report Date: 01/03/06 11:45
Project No: Job # 00107101.11030
Project ID: Ferndale High School

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A512457	12/15/2005 18:05	WINKEL	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-104	A512457-01	Water	12/14/05 12:50	12/15/05 18:05
MW-105	A512457-02	Water	12/14/05 14:07	12/15/05 18:05
MW-106	A512457-03	Water	12/14/05 15:12	12/15/05 18:05
MW-103	A512457-04	Water	12/14/05 17:25	12/15/05 18:05
QCTB	A512457-05	Water	12/14/05 00:00	12/15/05 18:05

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Sheri Speaks

Sheri L. Speaks
Project Manager

1/3/2006

Alpha Analytical Laboratories Inc.
208 Mason St. Ukiah, California 95482
e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

CHEMICAL EXAMINATION REPORT

Winzler & Kelly - Eureka
633 Third Street
Eureka, CA 95501-0417
Attn: Terry Clark

Report Date: 01/03/06 11:45
Project No: Job # 00107101.11030
Project ID: Ferndale High School

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A512457	12/15/2005 18:05	WINKEL	

Alpha Analytical Laboratories, Inc.

	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-104 (A512457-01)			**Sample Type: Water**			**Sampled: 12/14/05 12:50**			
TPH by EPA/LUFT GC/GCMS Methods									
TPH as Diesel	8015DRO	AL52004	12/19/05	12/20/05	1	ND ug/l		50	
TPH as Gasoline	8260GRO	AL52803	12/27/05	12/28/05	5	ND "		250	
TPH as Motor Oil	8015DRO	AL52004	12/19/05	12/20/05	1	ND "		100	
Surrogate: Tetratetracontane	"	"	"	"		*52.0 %*	*20-152*		
Surrogate: Toluene-d8	*8260GRO*	*AL52803*	*12/27/05*	*12/28/05*		*107 %*	*79-141*		
Volatile Organic Compounds by EPA Method 8260B									**R-04**
Benzene	EPA 8260B	AL52817	12/27/05	12/28/05	5	ND ug/l		1.5	
Toluene	"	"	"	"	"	ND "		1.5	
Ethylbenzene	"	"	"	"	"	ND "		2.5	
Xylenes (total)	"	"	"	"	"	ND "		2.5	
Methyl tert-butyl ether	"	"	"	"	"	ND "		2.5	
Surrogate: Bromofluorobenzene	"	"	"	"		*95.2 %*	*78-138*		
Surrogate: Dibromofluoromethane	"	"	"	"		*113 %*	*71-136*		
Surrogate: Toluene-d8	"	"	"	"		*107 %*	*88-139*		
MW-105 (A512457-02)			**Sample Type: Water**			**Sampled: 12/14/05 14:07**			
TPH by EPA/LUFT GC/GCMS Methods									
TPH as Diesel	8015DRO	AL52004	12/19/05	12/20/05	1	ND ug/l		50	
TPH as Gasoline	8260GRO	AL52803	12/27/05	12/28/05	2	ND "		100	
TPH as Motor Oil	8015DRO	AL52004	12/19/05	12/20/05	1	ND "		100	
Surrogate: Tetratetracontane	"	"	"	"		*59.4 %*	*20-152*		
Surrogate: Toluene-d8	*8260GRO*	*AL52803*	*12/27/05*	*12/28/05*		*107 %*	*79-141*		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Sheri Speaks

Sheri L. Speaks
Project Manager

1/3/2006

Alpha Analytical Laboratories Inc.
208 Mason St. Ukiah, California 95482
e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

CHEMICAL EXAMINATION REPORT

Winzler & Kelly - Eureka
633 Third Street
Eureka, CA 95501-0417
Attn: Terry Clark

Report Date: 01/03/06 11:45
Project No: Job # 00107101.11030
Project ID: Ferndale High School

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A512457	12/15/2005 18:05	WINKEL	

Alpha Analytical Laboratories, Inc.

	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-105 (A512457-02)			**Sample Type: Water**			**Sampled: 12/14/05 14:07**			
Volatile Organic Compounds by EPA Method 8260B									**R-04**
Benzene	EPA 8260B	AL52817	12/27/05	12/28/05	2	ND ug/l		0.60	
Toluene	"	"	"	"	"	ND "		0.60	
Ethylbenzene	"	"	"	"	"	ND "		1.0	
Xylenes (total)	"	"	"	"	"	ND "		1.0	
Methyl tert-butyl ether	"	"	"	"	"	ND "		1.0	
Surrogate: Bromofluorobenzene	"	"	"	"		*92.6 %*	*78-138*		
Surrogate: Dibromofluoromethane	"	"	"	"		*110 %*	*71-136*		
Surrogate: Toluene-d8	"	"	"	"		*107 %*	*88-139*		
MW-106 (A512457-03)			**Sample Type: Water**			**Sampled: 12/14/05 15:12**			
TPH by EPA/LUFT GC/GCMS Methods									
TPH as Diesel	8015DRO	AL52004	12/19/05	12/20/05	1	ND ug/l		50	
TPH as Gasoline	8260GRO	AL52803	12/27/05	12/28/05	2	ND "		100	
TPH as Motor Oil	8015DRO	AL52004	12/19/05	12/20/05	1	ND "		100	
Surrogate: Tetratetracontane	"	"	"	"		*133 %*	*20-152*		
Surrogate: Toluene-d8	*8260GRO*	*AL52803*	*12/27/05*	*12/28/05*		*111 %*	*79-141*		
Volatile Organic Compounds by EPA Method 8260B									**R-04**
Benzene	EPA 8260B	AL52817	12/27/05	12/28/05	2	ND ug/l		0.60	
Toluene	"	"	"	"	"	ND "		0.60	
Ethylbenzene	"	"	"	"	"	ND "		1.0	
Xylenes (total)	"	"	"	"	"	ND "		1.0	
Methyl tert-butyl ether	"	"	"	"	"	ND "		1.0	
Surrogate: Bromofluorobenzene	"	"	"	"		*95.4 %*	*78-138*		
Surrogate: Dibromofluoromethane	"	"	"	"		*114 %*	*71-136*		
Surrogate: Toluene-d8	"	"	"	"		*111 %*	*88-139*		
MW-103 (A512457-04)			**Sample Type: Water**			**Sampled: 12/14/05 17:25**			
TPH by EPA/LUFT GC/GCMS Methods									
TPH as Diesel	8015DRO	AL52004	12/19/05	12/20/05	1	**51 ug/l**		**50**	
TPH as Gasoline	8260GRO	AL52803	12/27/05	12/28/05	5	**940 "**		**250**	

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Sheri Speaks

Sheri L. Speaks
Project Manager

1/3/2006

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CHEMICAL EXAMINATION REPORT

Winzler & Kelly - Eureka
633 Third Street
Eureka, CA 95501-0417
Attn: Terry Clark

Report Date: 01/03/06 11:45
Project No: Job # 00107101.11030
Project ID: Ferndale High School

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A512457	12/15/2005 18:05	WINKEL	

Alpha Analytical Laboratories, Inc.

	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT		PQL	NOTE
MW-103 (A512457-04)			**Sample Type: Water**			**Sampled: 12/14/05 17:25**			
TPH by EPA/LUFT GC/GCMS Methods (cont'd)									
TPH as Motor Oil	8015DRO	AL52004	12/19/05	12/20/05	1	ND "		100	
Surrogate: Tetratetracontane	"	"	"	"		*110 %*	*20-152*		
Surrogate: Toluene-d8	*8260GRO*	*AL52803*	*12/27/05*	*12/28/05*		*110 %*	*79-141*		
Volatile Organic Compounds by EPA Method 8260B									**R-04**
Benzene	EPA 8260B	AL52817	12/27/05	12/28/05	5	**110 ug/l**		**1.5**	
Toluene	"	"	"	"	"	**9.8 "**		**1.5**	
Ethylbenzene	"	"	"	"	"	**22 "**		**2.5**	
Xylenes (total)	"	"	"	"	"	**100 "**		**2.5**	
Methyl tert-butyl ether	"	"	"	"	"	ND "		2.5	
Surrogate: Bromofluorobenzene	"	"	"	"		*116 %*	*78-138*		
Surrogate: Dibromofluoromethane	"	"	"	"		*114 %*	*71-136*		
Surrogate: Toluene-d8	"	"	"	"		*110 %*	*88-139*		
QCTB (A512457-05)			**Sample Type: Water**			**Sampled: 12/14/05 00:00**			
TPH by EPA/LUFT GC/GCMS Methods									
TPH as Gasoline	8260GRO	AL52803	12/27/05	12/28/05	1	ND ug/l		50	
Surrogate: Toluene-d8	"	"	"	"		*99.2 %*	*79-141*		
Volatile Organic Compounds by EPA Method 8260B									
Benzene	EPA 8260B	AL52817	12/27/05	12/28/05	1	ND ug/l		0.30	
Toluene	"	"	"	"	"	ND "		0.30	
Ethylbenzene	"	"	"	"	"	ND "		0.50	
Xylenes (total)	"	"	"	"	"	ND "		0.50	
Methyl tert-butyl ether	"	"	"	"	"	ND "		0.50	
Surrogate: Bromofluorobenzene	"	"	"	"		*94.4 %*	*78-138*		
Surrogate: Dibromofluoromethane	"	"	"	"		*111 %*	*71-136*		
Surrogate: Toluene-d8	"	"	"	"		*99.2 %*	*88-139*		

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Project Manager

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Project ID: Ferndale High School

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A512457	12/15/2005 18:05	WINKEL	

TPH by EPA/LUFT GC/GCMS Methods - Quality Control

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AL52004 - EPA 3510B Water										
Blank (AL52004-BLK1)				Prepared: 12/19/05 Analyzed: 12/20/05						
TPH as Diesel	ND	50	ug/l							
TPH as Motor Oil	127	100	"							QB-03
Surrogate: Tetratetracontane	*85.0*		"	*162*		*52.5*	*20-152*			
LCS (AL52004-BS1)				Prepared: 12/19/05 Analyzed: 12/20/05						
TPH as Diesel	1020	50	ug/l	976		105	52-136			
TPH as Motor Oil	1700	100	"	2000		85.0	58-138			
Surrogate: Tetratetracontane	*92.4*		"	*162*		*57.0*	*20-152*			
Matrix Spike (AL52004-MS1)		**Source: A512457-01**		Prepared: 12/19/05 Analyzed: 12/20/05						
TPH as Diesel	1220	50	ug/l	976	ND	125	61-129			
TPH as Motor Oil	1860	100	"	2000	ND	93.0	47-147			
Surrogate: Tetratetracontane	*82.6*		"	*162*		*51.0*	*20-152*			
Matrix Spike Dup (AL52004-MSD1)		**Source: A512457-01**		Prepared: 12/19/05 Analyzed: 12/20/05						
TPH as Diesel	1050	50	ug/l	976	ND	108	61-129	15.0	25	
TPH as Motor Oil	1940	100	"	2000	ND	97.0	47-147	4.21	25	
Surrogate: Tetratetracontane	*110*		"	*162*		*67.9*	*20-152*			
Batch AL52803 - VOAs in Water GCMS										
Blank (AL52803-BLK1)				Prepared & Analyzed: 12/27/05						
TPH as Gasoline	ND	50	ug/l							
Surrogate: Toluene-d8	*29.3*		"	*25.0*		*117*	*79-141*			
LCS (AL52803-BS1)				Prepared: 12/27/05 Analyzed: 12/28/05						
TPH as Gasoline	195	50	ug/l	200		97.5	75-126			

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A512457	12/15/2005 18:05	WINKEL	

TPH by EPA/LUFT GC/GCMS Methods - Quality Control

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AL52803 - VOAs in Water GCMS										
LCS (AL52803-BS1)				Prepared: 12/27/05 Analyzed: 12/28/05						
Surrogate: Toluene-d8	*26.9*		"	*25.0*		*108*	*79-141*			
LCS Dup (AL52803-BSD1)				Prepared: 12/27/05 Analyzed: 12/28/05						
TPH as Gasoline	189	50	ug/l	200		94.5	75-126	3.12	20	
Surrogate: Toluene-d8	*26.3*		"	*25.0*		*105*	*79-141*			
Matrix Spike (AL52803-MS1)		**Source: A512411-01**		Prepared: 12/27/05 Analyzed: 12/28/05						
TPH as Gasoline	274	50	ug/l	200	ND	120	32-166			
Surrogate: Toluene-d8	*24.7*		"	*25.0*		*98.8*	*79-141*			

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Project ID: Ferndale High School

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A512457	12/15/2005 18:05	WINKEL	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AL52817 - VOAs in Water GCMS										
Blank (AL52817-BLK1)				Prepared & Analyzed: 12/27/05						
Benzene	ND	0.30	ug/l							
Toluene	ND	0.30	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	0.50	"							
Surrogate: Bromofluorobenzene	*26.5*		"	*25.0*		*106*	*78-138*			
Surrogate: Dibromofluoromethane	*31.1*		"	*25.0*		*124*	*71-136*			
Surrogate: Toluene-d8	*29.3*		"	*25.0*		*117*	*88-139*			
LCS (AL52817-BS1)				Prepared & Analyzed: 12/27/05						
Benzene	4.95	0.30	ug/l	5.00		99.0	68-129			
Toluene	5.46	0.30	"	5.00		109	76-137			
Ethylbenzene	4.68	0.50	"	5.00		93.6	78-136			
Xylenes (total)	14.1	0.50	"	15.0		94.0	76-134			
Methyl tert-butyl ether	3.69	0.50	"	5.00		73.8	64-141			
Surrogate: Bromofluorobenzene	*28.1*		"	*25.0*		*112*	*78-138*			
Surrogate: Dibromofluoromethane	*26.8*		"	*25.0*		*107*	*71-136*			
Surrogate: Toluene-d8	*28.0*		"	*25.0*		*112*	*88-139*			
LCS Dup (AL52817-BSD1)				Prepared & Analyzed: 12/27/05						
Benzene	4.99	0.30	ug/l	5.00		99.8	68-129	0.805	25	
Toluene	5.38	0.30	"	5.00		108	76-137	1.48	25	
Ethylbenzene	4.71	0.50	"	5.00		94.2	78-136	0.639	25	
Xylenes (total)	14.1	0.50	"	15.0		94.0	76-134	0.00	25	
Methyl tert-butyl ether	3.52	0.50	"	5.00		70.4	64-141	4.72	25	
Surrogate: Bromofluorobenzene	*29.1*		"	*25.0*		*116*	*78-138*			

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A512457	12/15/2005 18:05	WINKEL	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte(s)	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch AL52817 - VOAs in Water GCMS										
LCS Dup (AL52817-BSD1)				Prepared & Analyzed: 12/27/05						
Surrogate: Dibromofluoromethane	*27.9*		"	*25.0*		*112*	*71-136*			
Surrogate: Toluene-d8	*28.0*		"	*25.0*		*112*	*88-139*			
Matrix Spike (AL52817-MS1)		**Source: A512411-01**		Prepared & Analyzed: 12/27/05						
Benzene	5.14	0.30	ug/l	5.00	ND	103	39-142			
Toluene	5.20	0.30	"	5.00	ND	104	44-148			
Ethylbenzene	4.65	0.50	"	5.00	ND	93.0	42-148			
Xylenes (total)	13.5	0.50	"	15.0	ND	90.0	43-145			
Methyl tert-butyl ether	3.52	0.50	"	5.00	ND	70.4	29-161			
Surrogate: Bromofluorobenzene	*27.0*		"	*25.0*		*108*	*78-138*			
Surrogate: Dibromofluoromethane	*28.3*		"	*25.0*		*113*	*71-136*			
Surrogate: Toluene-d8	*26.4*		"	*25.0*		*106*	*88-139*			

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Project ID: Ferndale High School

Order Number	Receipt Date/Time	Client Code	Client PO/Reference
A512457	12/15/2005 18:05	WINKEL	

Notes and Definitions

R-04	The Reporting Limits for this analysis are elevated due to sample foaming.
QB-03	The method blank contains analyte at a concentration above the MRL; sample reporting limits were raised as necessary.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
PQL	Practical Quantitation Limit

WORK ORDER
CHAIN OF CUSTODY RECORD

Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, CA 95482 • (707) 468-0401 • FAX (707) 468-5267

DATE 12-15-05 PAGE 1 OF 1

CLIENT'S NAME: Winzler & Kelly	PROJECT MANAGER: Terry Clark
STREET ADDRESS / CITY / STATE / ZIP: 633 Third St Eureka CA 95501	PHONE NUMBER: (707) 443-8326
PROJECT NAME: Ferndale High School	FAX NUMBER: (707) 444-8330
CONTRACT/PURCHASE ORDER/QUOTE NUMBER: 00107101.11030	SITE CONTACT:
SIGNATURE OF PERSON AUTHORIZING WORK UNDER TERMS STATED ON REVERSE SIDE OF THIS FORM.: Terry Clark	SAMPLED BY: C. Acy

ANALYSES

SAMPLE CONDITION ON RECEIPT:

COLD/ICED? _____

BUBBLES OR AIR SPACE? _____

WERE SAMPLES PRESERVED? _____

SAMPLE NUMBER/IDENTIFICATION	DATE	TIME	LAB SAMPLE NUMBER	SAMPLE TYPE: LIQ	AIR	SOLID	COMP	GRAB	NO. OF CONTS.	TPH-G/BTEX/MTBE 5030/8021B	TPH-D/MO w/silica Gel clean up 3510/ 3630/8015B	EXPLAIN IRREGULARITIES BELOW
MW-104	12/14/05	12:50	A512457-1	✓					4	X	X	Please do not analyze
MW-105		2:07	2	✓					4	X	X	QCTB if any sample is
MW-106		3:12	3	✓					4	X	X	non-detect for all volatile
MW-103		5:25	4	✓					4	X	X	analytes (TPH-G/BTEX)
QCTB												
												Sample results in EDF
												format. The global ID
												# T0602300340

RELINQUISHED BY: (SIGNATURE) Charlene Acy	RECEIVED BY: (SIGNATURE) Duane Morton	DATE 12/15/05	TIME 15:00
RELINQUISHED BY: (SIGNATURE) Duane Morton	RECEIVED BY: (SIGNATURE) Shon Speaks	DATE 12/15/05	TIME 18:10
RELINQUISHED BY: (SIGNATURE)	RECEIVED FOR LABORATORY BY:	SAMPLE CONTROL OFFICER	
METHOD OF SHIPMENT	AUTHORIZED BY:		

TURN AROUND TIME REQUESTED: 10 day TAT

SPECIAL INSTRUCTIONS

DRIVING TIME	SITE TIME	TOTAL TIME
5.9		

SAMPLE DESPOSITION:

1. STORAGE TIME REQUESTED _____ DAYS (SAMPLES WILL BE STORED FOR 30 DAYS WITHOUT ADDITIONAL CHARGES: THEREAFTER STORAGE CHARGES WILL BE BILLED AT THE PUBLISHED RATES.)
2. SAMPLE TO BE RETURNED TO CLIENT? ☐ YES ☐ NO

HAZARDOUS MATERIALS ARE THE PROPERTY OF THE CLIENT. THE CLIENT IS RESPONSIBLE FOR PROPER DISPOSAL OF HAZARDOUS WASTES. CLIENTS NOT PICKING UP HAZARDOUS WASTES MAY BE ASSESSED AN APPROPRIATE FEE.

Appendix E
W & K's Standard Operating Procedures

WINZLER & KELLY CONSULTING ENGINEERS

STANDARD OPERATING PROCEDURES GROUNDWATER LEVEL MEASUREMENTS AND FREE PHASE HYDROCARBON MEASUREMENTS

1. Objective

To establish accepted procedures for detecting free-phase hydrocarbons and measuring groundwater levels in monitoring wells.

2. Background

Any time water levels are required to determine the groundwater flow gradient or flow direction, water levels are collected. Wells are tested for free-phase hydrocarbons prior to insertion of electronic water level probes or purge pumps the Fourth time a well is sampled and in any well that has a history of free-phase hydrocarbons.

3. Personnel Required and Responsibilities

Project Manager: The Project Manager (PM) is responsible for ensuring that field personnel have been trained in these procedures and for verifying that water levels have been collected in compliance with this SOP.

Field Technician: The Field Technician is responsible for complying with this SOP, including determining if there are free phase hydrocarbons in the well, the thickness (if it exists) and the stabilized water level in the well.

4. Equipment Required

- Water level/free phase hydrocarbon indicator probe or pastes
- Tape measure
- Water Level Data Form/pencil
- Watch
- Disposable gloves
- Distilled water
- Alconox soap
- Containers to hold rinsate water
- Site Safety Plan and Hospital Map
- Keys to wells
- Tools to open wells

5. Procedure

After reviewing the Site Safety Plan and determining the type and concentrations of contaminants that may be present on site, the field personnel will don the proper level of personal protection prior to opening any wells.

Open all monitoring wells to be measured and remove expandable caps. Allow wells to equilibrate 5 to 15 minutes. Record time and visual observations regarding well access, condition, security, etc on water level data sheet.

5a. Alternative procedure for electronic water-level/free-phase hydrocarbon indicator

- Decontaminate probe with potable water and alconox mix. Rinse with distilled water.
- Lower probe into the well and determine the presence of any free-phase hydrocarbons. The probe will emit a continuous sound if free product is present. If no product is present, the probe will make an oscillating (beeping) sound when it encounters water. Record the depth of free-phase hydrocarbons on the water level data sheet. If no free-phase hydrocarbons are present, record the water depth. DO NOT SUBMERGE THE PROBE THROUGH THE FLOATING PRODUCT LAYER.
- Gradient calculations shall then be performed by calculation of the groundwater elevation by:
- GW ELEV = (TOC) - (depth to water).
- TOC indicates top of casing elevation as surveyed.
- If free-phase hydrocarbons are indicated, determine the depth to water using a steel measuring tape and water indicator paste, by the procedure below.

5b. Alternative procedure for product and water indicator pastes

- Decontaminate tape measure.
- Place **product** indicator paste on bottom two feet of tape measure.
- Lower tape measure into well. Note depth to which the end of the tape is lowered relative to the point of survey mark on the top of the well casing.
- Withdraw the tape. If paste has changed color, free-phase hydrocarbons are present. Calculate depth to the floating layer by:
  - Depth to Product = (depth to which tape lowered into well) - (length of product indicator paste discoloration).
- Remove product indicator paste with paper towel and decontaminate tape measure.
- Apply **water** indicator paste on bottom two feet of tape measure.
- Lower tape into well. Note depth to which end of tape is lowered.
- Withdraw the tape. Calculate the depth to water by:
  - Depth to Water = (depth to which tape lowered into well) - (length of water indicator paste discoloration).
- Obtain the depth to groundwater level readings from the point of survey mark, or from the North side of the top of the casing, if no point of survey mark is present. Readings will be measured to the nearest 0.01 foot. Note time and readings on water level data sheet.
- Use the same measuring device to measure water levels in all wells to be used in the gradient calculation.
- Obtain depth to casing bottom for each well by submerging a tape measure until it reaches the bottom of the well. Readings will be measured to the nearest 0.01 foot. Note readings on data sheet. If sampling is not going to be completed at the site, close and lock all wells.
- Gradient calculations shall then be conducted by making water depth corrections for the presence of free product. Fourth calculate the product thickness:
  - Product Thickness = (Depth to Water) - (Depth to Product).

- Water elevations when free product is present shall then be calculated by:
- GW ELEV = (TOC) - (Depth to Water) - $SG_{product}$ (Product Thickness).
- On any site where monitoring will occur more than once, a free product sample will be collected and measured for specific gravity ($SG_{product}$). In the absence of the site specific free product specific gravity $SG_{product}$ shall be assumed to be 0.78.

WINZLER & KELLY CONSULTING ENGINEERS

STANDARD OPERATING PROCEDURES
for
MONITOR WELL PURGING AND SAMPLING ACTIVITIES

1.0 OBJECTIVE

To establish accepted procedures for the purging and sampling groundwater from monitoring wells, to ensure that representative samples of formation water are collected by accepted methods.

1.1 Background

To obtain a representative groundwater sample from monitor wells, it is necessary to remove (purge) stagnant water from within and near the well prior to sampling. In general, three to seven casing volumes must be removed from the well prior to sampling, to provide a representative sample. Wells may be sampled after purging less than the minimum three volumes if well recharge rates are beyond reasonable time constraints. The specific method of well purging will be decided on a case by case basis, or as required by project specifications.

1.2 Personnel Required and Responsibilities

Project Manager: The Project Manager (PM) is responsible for ensuring that field personnel have been trained in the use of these procedures and for verifying that monitoring well purging and sampling activities are performed in compliance with these SOP's.

Field Technician: The Field Technician is responsible for complying with these SOP's, including the purging and sampling of monitor wells, the safe containerization of extracted waters, the documentation of field procedures, and the handling of samples..

2.0 WELL PURGING ACTIVITIES

2.1 Equipment Required

- Bottom-filling bailer, suction air pump, air-lift pump, gas operated (bladder) pump, submersible pump, or other pumping device
- pH meter
- Conductivity/Temperature Meter
- Water Level Indicator
- Well Sampling Data Sheet
- Indelible marker
- Disposable gloves
- Containers to hold extracted water (as required)

2.2. Purging Procedure

Prior to groundwater sampling, each monitoring well will be purged as described below. Prior to insertion into each well, all equipment will be either decontaminated (following W&K Decontamination procedures) or will be deemed clean or previously unused by the manufacturer.

- Open all monitoring wells to be purged and allow to equilibrate 5 to 15 minutes. Record time and visual observations regarding well access, condition, security, etc. in log book.
- Obtain depth to groundwater level readings according to Winzler & Kelly Standard Operating Procedures for Groundwater Level measurements and Free Phase Hydrocarbon Measurements. Record time and readings on the Well Level Measurement Data Sheet.
- Calculate the volume of standing water in each monitoring well. Record the volume calculated for each well on the Well Sampling Data Sheet.
- Begin purging the well by removing water from the well and collecting in a calibrated container (i.e., 5-gallon bucket marked in 1-gallon increments). The depth, or interval, from which the water is being purged should be noted on the data sheet.
- Obtain readings of field parameters (pH, conductivity, temperature, and turbidity) and make visual observations of color/odor/turbidity at selected intervals (i.e., every gallon, every five gallons, etc.) throughout the purging process. Depending on the calculated volume and the expected number of gallons to be purged, a minimum of five readings should be collected. Record the time, readings, and visual comments on the Purge Data Sheet.
- Continue purging until at least three (minimum) to four well volumes have been removed and the field parameters stabilize to within:

pH	≈0.1
conductivity	≈10%
turbidity	≈10%
temperature	≈1°

  Do not exceed seven well volumes.
- Obtain a final depth to groundwater level measurement prior to collection of the groundwater sample and note the reading and time on the Well Level Measurement Data Sheet. Be sure that the measurement probe has been thoroughly decontaminated prior to insertion into each well. Note any qualitative comments regarding recharge rate of each well, and calculate the percent of the original water column that has recovered at the time of the final depth measurement. It is ideal to attain a minimum of 80% water level recovery prior to sampling, if time constraints allow. Very slow recharge rates may not allow purging the minimum three volumes or 80% recovery; lesser volumes may be used for sampling, as needed and documented.
- Collect a groundwater sample following the directions below under Section 3.0.
- Containerize all purge water and decontamination water in 55-gallon drums. Use yellow indelible markers (storeroom supply) to label all drums on the side with date, contents, origin and other pertinent information. Avoid marking the tops of drums with black marker, such marks are temporary and will soon fade/rust. Note the number, condition and location of drums on site in the field notes.

3.0 WELL SAMPLING ACTIVITIES

3.1 Equipment Required

- Disposable bailer (previously unused) *
- Bottom emptying device (sampling port)
- Monofilament nylon line (min 40-lb test)
- Monitor Well Purge & Sample Data Sheets
- Sample containers (preserved, as required) - provided by the laboratory
- Sample labels
- Indelible marker
- Disposal gloves
- Decontamination soap (Alconox)
- Distilled water for equipment decontamination.

* A variety of sampling techniques are available for the collection of groundwater samples. Except where otherwise required, W&K only utilizes disposable polyethylene bailers to collect groundwater samples.

3.2. Sampling Procedure

Prior to collecting a groundwater sample from a monitoring well, each well must be properly purged in accordance with W&K's SOP for Monitoring Well Purging Activities (See Section 2.0 above), including the measurement of the final water level and documentation of recharge.

- Water from the desired screen interval will be collected by lowering the previously unused disposable, polyethylene, bottom-filling bailer into the well.
- When bailer is completely full, carefully retract the bailer from the well casing.
- Using a previously unused, new, bottom-emptying device, to minimize agitation of the water, transfer the water from the bailer to the sample containers.
- When sampling for volatile constituents (VOA's), the water samples will be collected in 40-ml glass vials (preserved as required by the analyses requested). Precautions will be taken to prevent capturing air bubbles in the vials.
- Upon filling, each vial will be immediately capped with a Teflon septum and plastic screw cap. The vial will be checked for air bubbles by inverting and gently tapping the vial. If any bubbles are visible, the vial will be refilled and confirmed to be free of any air bubbles.
- At a minimum, all samples will be labeled with the following information:

Sample ID	Date and Time Sample Collected
Location	Sampler's Initials
Project Number	Analyses Requested

- Sample information will be documented on the Chain-of-Custody form.
  All samples will be placed in an ice chest, chilled to a temperature of 4°C. The ice chest will remain in the custody of the sampler until it is transferred to the courier service for delivery at the analytical laboratory for analyses. Any and all transfer of

sample custody must be documented on the Chain-of-Custody form with the name, signature, affiliation, date and time of the persons releasing and receiving custody of the samples.

- Upon completion of the sampling activities, each well shall be closed and secured by replacing the well cap and securing the lock.
- Dispose of gloves, bailers, bottom-emptying devices, and bailing line after each us.